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THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Dennis L. Matthies	§	Group Art Unit:	2672
Serial No.:	09/909,037	§		
Filed:	July 19, 2001	§	Examiner:	Javid A. Amini
For:	Adaptable Large Area Display	§	Atty. Dkt. No.:	ITL.0569US (P11414)
Customer No.:	21906	§	Confirmation No.:	8472

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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APPEAL BRIEF

Sir:

Applicants respectfully appeal from the final rejection mailed October 29, 2003.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee Intel Corporation.

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF THE CLAIMS

Claims 1-7, 9-17, and 19-32 have been finally rejected. The rejection of claims 1-7, 9-12, and 20-32 are appealed.

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Date of Deposit: February 20, 2004

I hereby certify under 37 CFR 1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated above and is addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450.

*Cynthia L. Hayden*  
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#### IV. STATUS OF AMENDMENTS

The amendment filed on November 7, 2003, canceling claims, was refused entry by the Examiner.

#### V. SUMMARY OF THE INVENTION

A large area display or video wall 10, shown in Figure 1, may include a plurality of tiles 12 which are abutted together to form modules 14 which, in turn, are abutted together to form the display 10. Thus, a matrix of rows and columns of tiles form a matrix of tile modules 14 which in turn form the overall display 10. Specification, at page 4, line 7 through line 12.

Referring to Figure 2, each tile 12 may include a plurality of pixels 16 that are separated by black lines 30. The black lines 30 may be black paint or other black material that is formed on the image producing side 22 of the tile 12. The black lines 30 serve to improve contrast and, in conjunction with mullions described later, helps to obscure the lines or gaps formed by the abutment of tiles 12 against one another. These lines may disrupt the seamless image produced by the combination of tiles 12. Each tile 12 produces a portion of an overall image that is completed by the juxtaposition of all the image portions contributed by all the tiles 12. Specification, at page 4, line 13 through line 24.

In some cases, the actual pixel 16 may be smaller than the opening defined by the black lines 30. The number of pixels 16 per tile is highly variable as is the arrangement of pixels 16 on a given tile 12. Specification, at page 4, line 25 through page 5, line 2.

As shown in Figure 3, each tile 12, in one embodiment, may include a circuit board layer 18 and a display layer 20 which includes the display side 22. A set of two or more mounting pins 26 may be situated on the circuit board 18 on the rearwardly facing side 24 of the tile 12. Specification, at page 5, lines 3 through 7.

Moving next to Figure 4, a plurality of tiles 12a, 12b and 12c may be abutted together to form interfaces 13 between adjacent tiles 12. A structural plate 25 is utilized to support the plurality of tiles 12 making up the module 14. Each tile 12 is adjustably fastened to the structural plate 25 in one embodiment of the present invention. In particular, each mounting pin 26 on the rearwardly facing side 24 of a tile 12 is passed through an opening in the structural plate 25 and secured thereto using a fastener 29 on the back side of the structural plate 25. Specification, at page 5, line 8 through line 18.

For example, each tile 12 may include a set of four edge situated pins 26, shown in Figure 5, which engage the structural plate 25 in a fashion to be described in more detail hereinafter. Alternatively, each tile 12 may have the serrated edge shape shown in Figure 5a. In such case, each tile 12 may have a tapered tab 21 adjacent tapered valleys 23. The tab 21 on one tile engages a valley 23 on an adjacent tile 12 and similarly, the tab 21 on an adjacent tile engages a tab 23. In this way, the tiles 12 are interlocked and self-positioning, in one embodiment of the present invention. Specification, at page 5, line 19 through page 6, line 3.

Engagement of a pin 26 with the opening 28 in a structural plate 25 is shown in Figure 6. The pin 26 in one embodiment may have a diameter that is significantly less than the diameter of the opening 28 in the plate 25. This allows the position of the tile 12 to be adjusted with respect to the plate 25 as well as with respect to other tiles 12. By simply positioning the tile where desired by moving the pin 26 within the opening 28, the tile 12 may be aligned with other to avoid irregular appearance with and jagged resulting images. Specification, at page 6, line 4 through line 13.

When the tile 12 is appropriately positioned, it can be fastened using fastener 29 on the rear side of the plate 25. In one embodiment, the pin 26 may be threaded and the fastener 29

may simply be a fastening nut that threadedly engages the pin 26. The pin 26 may also be encircled by a locking nut 27 that may be threaded on the pin 26 to engage to display side surface of the structural plate 25. This adjusts the amount of extension of the pin 26 outwardly from the structural plate 25 and prevents subsequent relative movement. A washer or locking ring 31 may be included in some embodiments. As a result, each tile 12 may be positioned in a XY plane parallel to the plane of the structural plate 25 and may also be adjusted in the Z direction toward or away from the structural plate 25 in some embodiments. Specification, at page 6, line 44 through page 7 line 2.

Thus, as shown in Figure 7, with the nut 29 engaging the pin 26, the tile 12 is locked in position relative to the plate 25 and other tiles 12. Through the action of the locking nut 27, the Z direction position of the tile 12 may be fixed relative to the structural plate 25 and other tiles 12. Specification, at page 7, line 3 through line 8.

A mullion 34, shown in Figure 8, may be positioned between adjacent tiles 12 in some embodiments. The mullion 34 may have a width that corresponds to the width of a black line 30. In particular, the distance between pixels 16 may correspond to the width of the mullion 34. This may contribute to ensuring that a uniformly contrast enhancing pattern of black lines results which facilitates the generation of a seamless image. Specification, at page 7, line 9 through line 16.

In one embodiment, the mullion 34 may include a downwardly directive prong 38 that goes into the gap or interface 13 between adjacent tiles 12. A transversely directed upward surface 36 may be situated atop the tiles 12 over the interface 13, as shown in Figure 9. Each tile 12 may include a pointed end section 35 for purposes of engaging other mullions at the intersection of four adjacent tiles 12. Specification, at page 7, line 17 through line 24.

Generally, the upper surface 36 of the mullion 34 is colored black. However, the underlying surfaces 37 may be white or reflective in some embodiments. In other cases, the surfaces 37 may also be black. Specification, at page 7, line 25 through page 8 line 2.

In some embodiments, the downwardly directed prong 38 may be transparent. In such case, the prong 38 may have an index of refraction that matches that of the adjacent glass panels used in the adjacent tiles 12. This may serve to reduce the internal reflections caused by the interface 13, particularly in the case where light is emitted outwardly from the display 10. In other cases, the prong 38 may be white or reflective to attempt to increase the amount of light that is emitted by the display 10. Specification, at page 8, line 3 through line 11.

Thus, as shown in Figure 10, the mullion 34 is situated with the upper surface 36 atop a tile 12 and the prong 38 engaging the interface 13 between adjacent tiles. The mullion 34 may be fastened by adhesive 42 to the upper surface of a tile 12 as well as to the interface 13 in some embodiments. Specification, at page 8, line 12 through line 17.

At the intersection of a plurality of tiles 12, the mullions 34a, 34b, 34d and 34e may engage one another using their pointed end 35, as shown in Figure 10. Other embodiments may include other shapes for the end surfaces 35 of the mullions 34. Specification, at page 8, line 18 through line 22.

Referring to Figure 11, a group of tiles 12 may be connected together to form a tiled module 14. Each tiled module 14 may also include pins 46 on the reverse or non-display side 48. As shown in Figure 12, each set of adjacent modules 14a, 14b and 14c may be attached to a securing plate 52. Securing plate 52 may be a separate plate from the plate 25 utilized to secure a plurality of tiles 12. However, the attachment of the pins 46 through the plate 52 using

fasteners may be as described previously with respect to the tiles. Specification, at page 8, line 23 through page 9, line 6.

Thus, referring to Figure 13, each module 14 includes a plurality of pins 46 that may engage fasteners 29 on the back side of the plate 52. Specification, at page 9, line 7 through line 9.

As indicated in Figure 13a, the combination of tiles 12, the type shown in Figure 5a may result in modules 14 with serrated edges including tabs 21 and valleys 23 contributed by the individual tiles. Specification, at page 9, line 10 through line 13.

Referring next to Figure 14, because the number of tiles 12 in any given display 10 is variable, the signals for each tile 12 may be distributed in at least two different fashions. In one approach, each display 10 receives a separate signal  $S_1$ - $S_N$  for each of N tiles 12 within a given module 14. Those signals may be split at an interface 70 and distributed to each tile 12 as indicated in Figure 14. Alternatively, signals may be sent to each module 14. That signal may then be decoded by interface 72 to generate separate signals,  $S_1$ ,  $S_2$ ,  $S_3$ , etc. for each of the tiles 12a, 12b and 12c, as shown in Figure 15. Specification, at page 9, line 14 through line 24.

Referring to Figure 16, a display may be made up of tiles 12d and 12e abutted along a gap 13. Surface profile features 50 may be formed in the upper surface of each tile 12d or 12e in order to further camouflage or conceal the occurrence of gaps 13. For example, the corners may be removed from the tiles 12d and 12e to create the inclined surfaces 50b, which together form a v-shaped slot. Specification, at page 9, line 25 through page 10 line 5.

Pixels are defined by the light emitting material 52 on the lower surface of each tile 12d or 12e. Between adjacent pixels, a v-shaped surface profile feature 50a may be formed. Thus, the presence of a regular pattern of surface profile features 50 tends to hide the occurrence of the

gaps 13. As a result, the display may have a more seamless appearance. Specification, at page 10, line 6 through line 12.

While v-shaped grooves are shown in Figure 16, any of a variety of other surface profile features may be regularly distributed across the upper or exposed surface of the display in order to further conceal the gaps 13. As an additional example, a plurality of slot surface profile features 60 may be formed in the upper surface of the tiles 12f and 12g as shown in Figure 17. In one embodiment, the surface profile features 60 may have dimensions that correspond to the dimensions of the gaps 13. Thus, as shown, the gaps 13 may be defined to have a given width and the surface profile features 60a may be distributed between adjacent pixels to continue or conceal and camouflage the occurrence of the gaps 13. Because of the regular array of surface profile features 60, the gaps 13 become less evident. Specification, at page 10, line 13 through page 11 line 2.

## VI. ISSUES

- A. Is Claim 1 Anticipated by Mazurek?**
- B. Is Claim 20 Anticipated by Mazurek?**
- C. Is Claim 26 Anticipated by Mazurek?**
- D. Is Claim 27 Anticipated by Mazurek?**
- E. Is Claim 28 Anticipated by Mazurek?**
- F. Is Claim 29 Anticipated by Mazurek?**
- G. Is Claim 30 Anticipated by Mazurek?**
- H. Is Claim 31 Non-Enabling?**

## VII. GROUPING OF THE CLAIMS

Claims 2-12 may be grouped with claim 1.

Claims 21-25 may be grouped with claim 20.

Claims 27-31 may not be grouped.

Claim 32 may be grouped with claim 31.

## VIII. ARGUMENT

### A. Is Claim 1 Anticipated by Mazurek?

Claim 1 calls for a first and second tile, wherein one of the tiles includes alignment tabs and the other of the tiles includes alignment grooves. Thus, one tile must include a groove and the other tile must include a tab.

The office action suggests that Mazurek teaches alignment tabs and grooves, citing column 3, lines 56-67, and column 4, lines 1-6, and specifically referring to the global black mask. It is indicated that the global black mask provides an alignment grid for alignment. Of course, it does. Referring to Mazurek at column 18, lines 43-48, the grid that is referred to in the background is illustrated in Figure 19 and is made up of stripes 1532 and 1534 of the global black mask 1530. It is seen that all the grid is is a plurality of transverse lines. There are no tabs and there are no grooves on the tiles themselves.

Therefore, the rejection of claim 1 as anticipated by Mazurek should be reversed.

### B. Is Claim 20 Anticipated by Mazurek?

Claim 20 calls for securing a plurality of display tiles to a plurality of first structural plates to form modules.

The final rejection points out that a housing 80 is secured to a rear plate 350. But, of course, there is only one rear plate 350 and there is only one housing 80. There are a plurality of



modules 100. However, the claim calls for a plurality of display tiles, that could conceivably correspond to the plurality of modules. But the claim also calls for securing a plurality of display tiles to a plurality of first structural plates. There are no plurality of first structural plates that receive the modules 100. Moreover, there is no second structural plate that receives the plurality of modules.

Therefore, the rejection should be reversed.

**C. Is Claim 26 Anticipated by Mazurek?**

Claim 26 calls for a plurality of tiles arranged in array with gaps between the tiles. A plurality of the tiles have a regular pattern of surface profile features to find in the surface of the tiles so as to camouflage the appearance of the gaps between adjacent tiles.

The office action does not point out what these surface features are. The cited material in the office action apparently relates to Figure 17, which shows no surface features of any kind that camouflage the appearance of the gaps between the displays 430.

Therefore, the rejection should be reversed.

**D. Is Claim 27 Anticipated by Mazurek?**

Claim 27 calls for profile features that are V-shaped. Plainly, there are simply no surface profiles of any type in Mazurek, much less the ones described in claim 27.

Therefore, the rejection should be reversed.

**E. Is Claim 28 Anticipated by Mazurek?**

Claim 28 calls for gaps that are V-shaped. Plainly, there are simply no surface profiles of any type in Mazurek, much less the ones described in claim 28.

Therefore, the rejection should be reversed.

**F. Is Claim 29 Anticipated by Mazurek?**

Claim 29 calls for surface features that are positioned between adjacent pixels.

Plainly, there are simply no surface profiles of any type in Mazurek.

Therefore, the rejection should be reversed.

**G. Is Claim 30 Anticipated by Mazurek?**

Claim 30 calls for surface profiles that are slot-like. Plainly, there are simply no surface profiles of any type in Mazurek, much less the ones described in claim 30.

Therefore, the rejection should be reversed.

**H. Is Claim 31 Non-Enabling?**

Claim 31 was rejected based on Section 112, first paragraph, for failing to enable the first structural plate.

Claim 31 is supported by the item 12 shown, for example, in Figures 6 and 7. The first and second tiles connectable to the plate are supported by the tiles 25, also shown in Figures 6 and 7. The mullions that fit over the gap between the first and second tiles are supported, as shown in Figure 10, by the items 34 that plainly fit in between the tiles 12d. Claim 32 calls for mullions that are T-shaped. Referring to Figures 8 and 9, T-shaped mullions are plainly shown.


Therefore, the rejection should be reversed.

IX. CONCLUSION

Since the rejections of the claims are improper, they should be reversed.

Respectfully submitted,

Date: February 20, 2004



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## APPENDIX OF CLAIMS

1. A large area display comprising:
  - a first structural plate; and
  - a first and second tile connectable to said plate, said tiles including image generating pixels, wherein one of said tiles includes alignment tabs and the other of said tiles includes alignment grooves to align the first tile relative to the second tile.
2. The display of claim 1 including a set of fasteners on said first and second tiles, said fasteners fastening said first and second tiles to said first structural plate.
3. The display of claim 2 wherein said fasteners include threaded pins, said plate including holes to receive said pins, said fasteners adjustably position said tiles relative to said plate.
4. The display of claim 3 wherein the hole in said plate is of substantially greater diameter than the diameter of one of said pins.
5. The display of claim 4 including a pair of locking nuts, one on each side of said plate.
6. The display of claim 5 including at least two pins on each tile.
7. The display of claim 1 wherein each tile may be adjusted in a plane parallel to the plane of said plate and inwardly and outwardly with respect to said plane.

9. The display of claim 1 including mullions to fit over the gaps between said first and second tiles.

10. The display of claim 9 wherein said mullion is tee shaped including a downwardly extending prong that extends between said tiles, said prong being substantially transparent.

11. The display of claim 1 including a second structural plate and a plurality of tiles connected to a first and second structural plates, said first and second structural plates being adjustably securable to a third structural plate.

12. The display of claim 11 including a plurality of tiles connected to first and second structural plates and a plurality of first and second structural plates coupled to a third structural plate to form a large area display.

13. A method comprising:  
securing a plurality of tiles to a first structural plate to form a large area display;  
forming a module made up of a plurality of tiles coupled to said first structural plate;  
providing a signal to said module for said plurality of tiles; and  
separating said signal into components to drive each of said tiles.

14. The method of claim 13 including adjustably mounting a plurality of tiles to a first structural plate and mounting a plurality of first structural plates to a second structural plate.

15. The method of claim 14 including adjustably mounting said first structural plate to said second structural plate.

16. The method of claim 15 including providing alignment devices on each tile to position each tile relative to the other tile.

17. The method of claim 13 including forming a module made up of a plurality of tiles coupled to a first structural plate and providing electrical signals to said module for each of said tiles.

19. The method of claim 13 including enabling said tiles to be coupled to said first structural member in the field.

20. A method comprising:  
securing a plurality of display tiles to a plurality of first structural plates to form modules; and  
securing a plurality of modules to a second structural plate to form a large area display.

21. The method of claim 20 including adjustably securing said plurality of tiles to first structural plates.

22. The method of claim 20 including adjustably securing said modules to said second structural plate.

23. The method of claim 20 including threadedly fastening said tiles to said first structural plates.

24. The method of claim 23 including threadedly fastening said modules to said second structural plate.

25. The method of claim 20 including securing said tiles to said first structural plates so that the position of one tile may be adjusted relative to another tile in three dimensions.

26. A large area display comprising:  
a plurality of tiles arranged in an array with gaps between adjacent tiles; and  
a plurality of said tiles having a regular pattern of surface profile features defined in the surface of said tiles so as to camouflage the appearance of the gaps between adjacent tiles.

27. The display of claim 26 wherein said surface profile features are v-shaped.

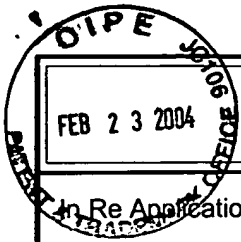
28. The display of claim 27 wherein the region above the gaps is v-shaped.

29. The display of claim 26 wherein said surface profile features are positioned between adjacent pixels.

30. The display of claim 26 wherein said surface profile features are slot-like.

31. A large area display comprising:
- a first structural plate;
  - a first and second tile connectable to said plate, said tiles including image generating pixels; and
  - mullions to fit over the gaps between said first and second tiles.
32. The display of claim 31 wherein said mullions are tee shaped including a downwardly extending prong that extends between said tiles, said prong being substantially transparent.





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**TRANSMITTAL OF APPEAL BRIEF (Large Entity)**

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Serial No.  
09/909,037

Filing Date  
July 19, 2001

Examiner  
Javid A. Amini

Group Art Unit  
2672

Invention: Adaptable Large Area Display

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TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on January 21, 2004.

The fee for filing this Appeal Brief is: \$330.00

- ☒ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 20-1504

Signature

Dated: February 20, 2004

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Signature of Person Mailing Correspondence

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